L111
.A3P18
v. 12

Pamphlet No. 12 April, 1930

UNITED STATES
DEPARTMENT OF THE INTERIOR
RAY LYMAN WILBUR, SECRETARY
OFFICE OF EDUCATION
WILLIAM JOHN COOPER, COMMISSIONER
WASHINGTON, D. C.

LIBRARY OF PRINCETON THEOLOGICAL SEMINARY
OCT 13 1930

A GRAPHIC PRESENTATION OF STATISTICS OF ILLITERACY BY AGE GROUPS

By JAMES F. ABEL
Chief of the Division of Foreign School Systems, U. S. Office of Education

Data on literacy and illiteracy by age groups of the population are gathered and reported at the regular decennial censuses by several countries. The value of data collected and presented in this way is much greater than merely the amount of literacy as a certain per cent of the total population or of one or two age groups. The purposes of this pamphlet are to present four examples of statistics of literacy and illiteracy by age groups; to indicate the advantages and uses of such data; and to illustrate a graphic method of presenting them so they may be quickly and easily understood.

Bulgaria as an example.—The report of the census taken for Bulgaria on December 31, 1920, gives the number of persons able to read and write by 1-year periods for the ages 5 to 29, inclusive, and by 5-year periods for the ages 30 to 100. The per cent which each age group is of the total population, and the per cent of literacy in any age group or combination of age groups as well as for the total population may be computed from these data in the way that they are in the following table:

TABLE 1.—*Distribution by age groups of literates (can write) in Bulgaria, census of December 31, 1920*

Age	Number of persons	Per cent of total population	Literates	Per cent of literacy
1	2	3	4	5
Under 5 years	495,913	10.23	None.	None.
5	118,260	2.44	29	0.02
6	149,715	3.09	2,295	1.53
7	104,281	2.15	23,445	22.48
8	136,479	2.82	67,105	49.17
9	109,840	2.27	74,292	67.64
5 to 9, inclusive	618,575	12.77	167,166	27.02

120747—30

TABLE 1.—*Distribution by age groups of literates (can write) in Bulgaria, census of December 31, 1920*—Continued

Age	Number of persons	Per cent of total population	Literates	Per cent of literacy
1	2	3	4	5
10	146,174	3.02	97,364	66.61
11	106,358	2.19	81,125	76.28
12	142,596	2.94	97,862	68.63
13	121,476	2.51	87,573	72.09
14	125,013	2.58	88,620	70.89
10 to 14, inclusive	641,617	13.24	452,544	70.53
15	125,757	2.59	83,857	66.68
16	116,234	2.40	79,184	68.12
17	105,551	2.18	75,141	71.19
18	111,616	2.33	74,879	67.09
19	79,627	1.65	59,227	74.38
15 to 19, inclusive	538,785	11.15	372,288	69.10
20	129,364	2.67	82,803	64.01
21	65,172	1.34	48,045	73.72
22	85,818	1.77	58,103	67.70
23	80,242	1.65	56,204	70.04
24	73,635	1.52	50,941	69.18
20 to 24, inclusive	434,231	8.95	296,096	68.19
25	103,212	2.13	56,309	54.56
26	71,254	1.47	45,803	64.28
27	55,783	1.16	36,590	65.59
28	74,604	1.54	43,250	57.97
29	38,606	.79	25,777	66.77
25 to 29, inclusive	343,459	7.09	207,729	60.48
30–35	300,788	6.26	162,086	54.09
35–40	311,135	6.45	157,030	50.47
40–45	225,261	4.65	96,043	42.64
45–50	191,472	4.00	73,764	38.52
50–55	178,671	3.70	60,716	33.98
55–60	153,548	3.17	45,033	29.33
60–65	137,260	2.85	27,302	19.89
65–70	95,807	1.97	17,049	17.80
70–75	81,597	1.68	9,698	11.89
75–80	39,074	.82	4,835	12.37
80–85	33,184	.69	2,560	7.71
85–90	11,441	.24	956	8.36
90–95	8,057	.17	398	4.94
95–100	2,809	.06	141	5.02
100 and over	2,161	.04	57	2.64
Age unknown	2,126	.04	854	40.17
Total	4,846,971	----------	2,154,945	44.46

Graphic presentation.—The data in Table 1 are presented graphically in Chart I on page 6. Assume that the entire area of the square represents the total population (4,846,971) of Bulgaria, the square being drawn to such a scale that 1.52 square inches represents 500,000 of population. On the bottom line is a scale marked "Years of age" and reading from left to right, 0 to 100 years. The age groups are so laid off that the distance between any two points is the same per cent of the entire base line as the age group or groups indicated is of the total population. In other words, the per cents as given in column 3 of Table 1 are set off proportionally on the base line of the square. By the simple geometrical principle that areas of rectangles

with equal altitudes are to each other as the lengths of their respective bases, if lines are drawn from any two of these points vertically through the square and perpendicular to the base, the areas included between those lines are in the same proportion to each other and to the entire square, as the age groups indicated are to each other and to the total population. For instance the area in single cross hatch which represents the group from 0 to 5 years of age is 10.23 per cent of the square just as 495,913 children under 5 years of age were 10.23 per cent of the total population of Bulgaria. The area, partly in double-cross hatch and partly in white representing the 618,575 children from 5 to 9 years of age, inclusive, is 12.77 per cent of the square just as that age group is 12.77 per cent of the population. In like manner the group 10 years of age and over is shown partly in white (can write) and partly in black (can not write) and represents 77 per cent, or 3,732,483 of the population.

On the top line of the square is a scale marked "Year of birth" and reading from right to left, 1820 to 1920. This serves to indicate the years of birth of any age group, and also as a check on the scale "Years of age." For example, the persons that were 15 years of age in 1920 were born in 1905.

The line between the white and the black or shaded areas may properly be termed the "curve of literacy." Horizontally it is made up of a series of indices by per cent of literacy for the age groups into which the population 5 years of age and over is divided; its vertical segments indicate the groups. The marked departures from the normal trend of the curve, that are shown for the ages 20, 25, and 28, are to a considerable extent due to the tendency of all people, and especially illiterates, to give their ages in round numbers. The per cent scale of the literates, marked "per cent can write" is laid off on the left side of the square and reads from bottom to top, 0 to 100. By it the per cent of literacy for any given age group may be read directly and fairly accurately. As examples, in Bulgaria in 1920 the per cent of literacy among persons 7 years of age was approximately 22.5; among those 35 to 39 years old it was 50.5; among those 70 to 74, it was 12 per cent, etc. The per cent scale of illiteracy marked "per cent can not write" is on the right side of the square, reads from top to bottom 0 to 100, and is to be used in determining directly the index of illiteracy for any age group, and as a check on the "can write" scale.

The advantages in this scheme of graphic presentation are in the ease and readiness with which the observer can appreciate (1) the relative numerical importance, in the total population, of each age group shown; (2) the per cent of literacy for each group, checked by the per cent of illiteracy; (3) the numerical weight of the age groups that are excluded or included in computations of literacy and illit-

eracy; (4) the importance of different indices of literacy and illiteracy; (5) the nation's progress for a long period of time in attaining literacy; and the rate at which the school system of the country is taking hold of and training the citizenry in the arts of reading and writing. A sixth and great advantage is that such graphs, if drawn for several countries, show whether the data from the different countries are properly comparable.

The first two of these advantages are fairly obvious and need no further explanation. The others are not so easily seen and will be taken up in the order given.

Third, when definitions of literacy or illiteracy are being set, the question arises as to what age groups may properly be left entirely out of consideration because, in the nature of the situation, the persons within those ages can not be expected to read and write and if they do not, no blame attaches to the country or its government. In computing the per cent of literacy for any people, it is right to omit entirely from the reckoning all persons under 5 years of age. In several countries that is done. The age could reasonably be raised to 6 but using 5 for the lower limit is the more common practice. Excluding from computation the group from 5 to 9 years of age, inclusive, is not so justifiable. The school has taken hold of or should have taken hold of the child when he is 6 years of age and with two years of training he is expected to be literate to the extent that he can read and write easy material fairly well. In most countries the 5-to-9 age group is changing from a *can not write* to a *can write* status and for several purposes it is valuable to know for any age year the per cent of this group that attained the latter status. Persons under 5 years of age generally constitute from 12 to 14 per cent of the total population; those under 10 roughly 25 per cent. The graph shows the proportions as they were in Bulgaria in 1920.

Fourth, if the literacy data are given by many age groups, indices based on different ages may be computed and used. Among the more important are those for (*a*) the total population; (*b*) the population 5 years of age and over; and (*c*) the population 10 years of age and over. These three indices are indicated on the graph under the heading "Average per cent." For Bulgaria they are, respectively, 44.46, 49.5, and 53.25 per cent. The three lines showing them illustrate graphically what happens when different age groups are taken into consideration. With the data that are given for Bulgaria it would be easy to compute and show on this graph indices for such other groups as 6 years of age and over; 12 and over; 15 and over; 15 to 30, etc., but the three given are the ones most commonly used for comparative purposes and are all that are needed here for illustration.

Note now the fifth of the advantages, the graphic presentation of progress toward literacy that was made in about 80 years. In 1920,

literacy among Bulgarians 90 to 95 years of age, persons born in 1825 to 1830, was 4.94 per cent; among those from 10 to 14 years, inclusive, persons born from 1905 to 1910, it was 70.53 per cent, a gain of some 65 per cent in 80 years. The curve of literacy rises rapidly. The first group should have been attending school from about 1832 to 1842; the second group in the years from 1912 to the date of the census, 1920.

A review of the history of Bulgaria, especially the educational history, for the period from 1830 to 1920 is interesting in connection with this delineation of the nation's progress toward complete literacy. Bulgaria was under Turkish rule for nearly five centuries, from 1396 to 1878. During most of that time the only Bulgarian schools were kilii, a name applied to small groups of children gathered in cells of the convents to learn reading, writing, church music, and the rudiments of arithmetic. In the eighteenth century public primary communal schools, also called kilii, began to appear here and there. Up to 1835 the Bulgarians had no other schools and in that year they were 92 in number. The first purely Bulgarian public school was opened then and the Lancastrian system was introduced. That same year the first secondary school was opened at Gabrovo by Vassil Apriloff who gave much of his life to developing the institution and came to be considered the first organizer of public education in Bulgaria. The school grew in strength not only as a secondary institution but as a veritable national normal school and intellectual center from which students went out to all parts of Bulgaria.

After 1835 public primary schools increased rapidly in number. In 1878 the country had 1,658 of them, 103 in the cities, the remainder in the country districts. The increase in quantity was accompanied by a corresponding betterment in quality. School buildings were improved; the Bulgarian language introduced as the teaching medium; teachers were trained; an official program developed; and school committees selected. Bulgaria was forming a national consciousness.

A teachers' conference was held in 1868 and under the leadership of the Bulgarian Exarchy which was actively promoting education, a number of more important ones met in 1874. At these conferences a set of principles for a public education system was adopted and reported to the Exarchy. Making them effective was delayed by the war in which Bulgaria won its independence from Turkey in 1878. A constitution was promulgated the following year. The new government included a ministry of public instruction, and public, compulsory, lay education for all citizens has since then been a continued policy of the country. In 1907, Bulgaria had 4,581 primary schools with 8,771 teachers and 400,308 pupils; and 390 secondary schools with 1,990 teachers and 44,190 pupils.

With these policies and this educational history—the main events of which are shown at the top of Chart I—in mind, the sharp uptrend of the curve of literacy is easily explainable. It is graphic evidence that the way to form a literate nation is to build an adequate system of schools. The progress is all the more noteworthy since Bulgaria

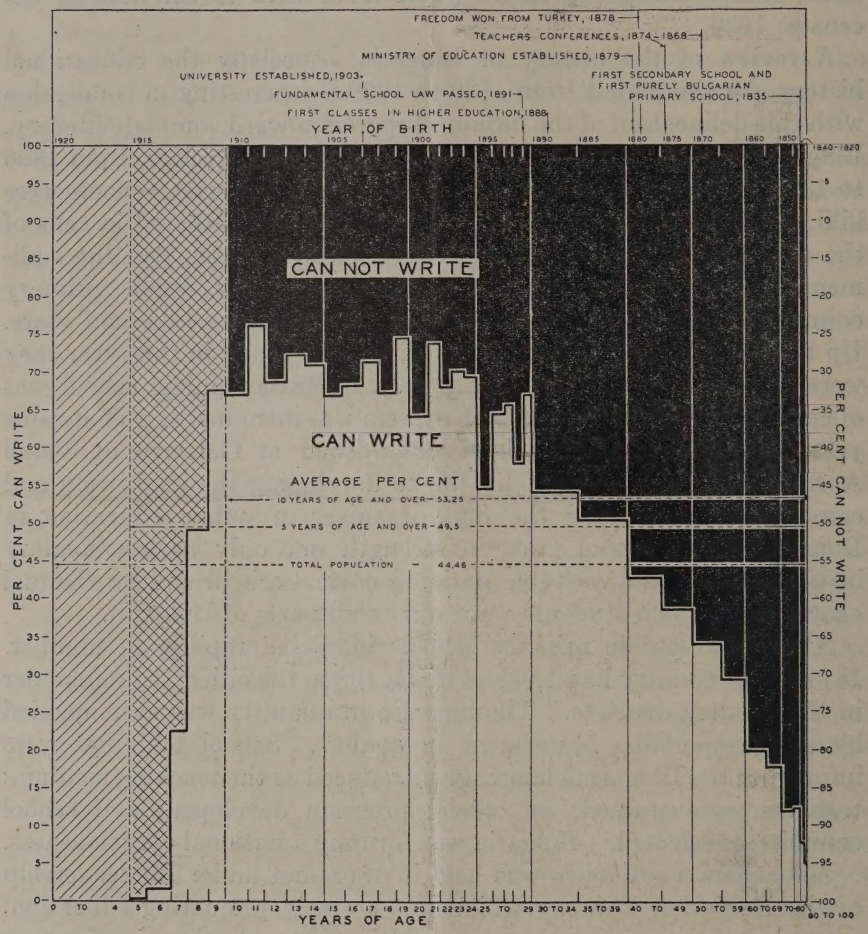
FREEDOM WON FROM TURKEY, 1878
TEACHERS CONFERENCES, 1874-1868
MINISTRY OF EDUCATION ESTABLISHED, 1879
UNIVERSITY ESTABLISHED, 1903
FIRST SECONDARY SCHOOL AND FIRST PURELY BULGARIAN PRIMARY SCHOOL, 1835
FUNDAMENTAL SCHOOL LAW PASSED, 1891
FIRST CLASSES IN HIGHER EDUCATION, 1888
YEAR OF BIRTH
1920 1915 1910 1905 1900 1895 1890 1885 1880 1875 1870 1865 1860 1855 1850 1845-1840
CAN NOT WRITE
CAN WRITE
AVERAGE PER CENT
10 YEARS OF AGE AND OVER - 53.25
5 YEARS OF AGE AND OVER - 49.5
TOTAL POPULATION - 44.46
PER CENT CAN WRITE
PER CENT CAN NOT WRITE
YEARS OF AGE

CHART I.—Distribution by age groups of literates (can write) and illiterates (can not write) in Bulgaria, census of December 31, 1920. Scale—1.52 square inches equals 500,000 population

was involved in several wars during the nineteenth century and the first two decades of the twentieth.

The sixth of these advantages, making reliable comparisons as to the status of literacy in different countries, is discussed later in this study.

United States.—The United States Bureau of the Census gathers data for illiteracy, defined as inability to write in any language, not necessarily English, regardless of ability to read, among persons 10

years of age and over, and reports them by the age groups 10 to 14; 15 to 19; 20 to 24; 25 to 34; 35 to 44; 45 to 54; 55 to 64; and 65 years and over. The figures are summarized in the following table:

TABLE 2.—*Statistics of illiteracy by age groups in the continental United States, census of 1920*

Age group	Population in the group	Per cent of total	Number of "Can not write"	Per cent "Can not write"
1	2	3	4	5
0 to 9	22,971,305	21.7	(1)	(1)
10 to 14	10,641,137	10.1	246,360	2.3
15 to 19	9,430,556	8.9	283,316	3.0
20 to 24	9,277,021	8.8	392,853	4.2
25 to 34	17,157,684	16.2	961,200	5.6
35 to 44	14,120,838	13.4	988,961	7.0
45 to 54	10,498,493	9.9	857,776	8.2
55 to 64	6,531,672	6.2	594,573	9.1
65 and over	4,933,215	4.7	591,385	12.0
Age not known	148,699	.1	15,481	10.4
Total	105,710,620	100.0	[2] 4,931,905	[2] 6.0

[1] No data.

[2] Exclusive of those 0 to 9 years of age.

Of this use of age groups in reporting illiteracy statistics the bureau says:[1]

The extension of educational opportunity from decade to decade is brought out by the statistics for age groups. The illiteracy for each age group measures the lack of educational advantages during the childhood and youth of that group. If the development of school facilities were to be arrested completely at the present time, there would nevertheless be a gradual diminution in illiteracy for some decades to come, as the older and more illiterate age classes would dwindle and the general level of illiteracy gradually approach that found at present in the younger age classes.

The process of reporting by leaving out all under 10 years of age and using for the rest of the population three 5-year and four 10-year age groups up to 65 years of age and including in one group all those 65 and over, considerably limits the number of indices that may be worked out for comparative purposes and permits of no index for either the total population or the population 5 years of age and over. Since these two latter indices are available for many other countries, their absence in the figures for the United States is, to the student of world illiteracy, something of a disadvantage. The data in Table 2 are graphically shown in Chart II.

Chart II is drawn on the same principle as Chart I with the exceptions that the age group 0 to 5 is not shown and a different scale (0.07 square inch equals 500,000 of population) is used. The population of the United States is more than twenty times that of Bulgaria.

[1] Department of Commerce, Bureau of the Census. Fourteenth Census of the United States—Population: 1920. Illiteracy. Washington. Government Printing Office, 1923.

The curve of literacy in Chart II is fairly regular because of the few and numerically large age groups reported. For the same reason and also because no one event greatly affected it, it reflects little of the history of education in the United States. It rises slowly, for the United States started the century 1820 to 1920 on a fairly high level, but not so high as the per cent of literacy among people 65 years of age and over in 1920 indicates. The per cents of literacy for the different age groups as shown in the census of 1920 and delineated on Chart

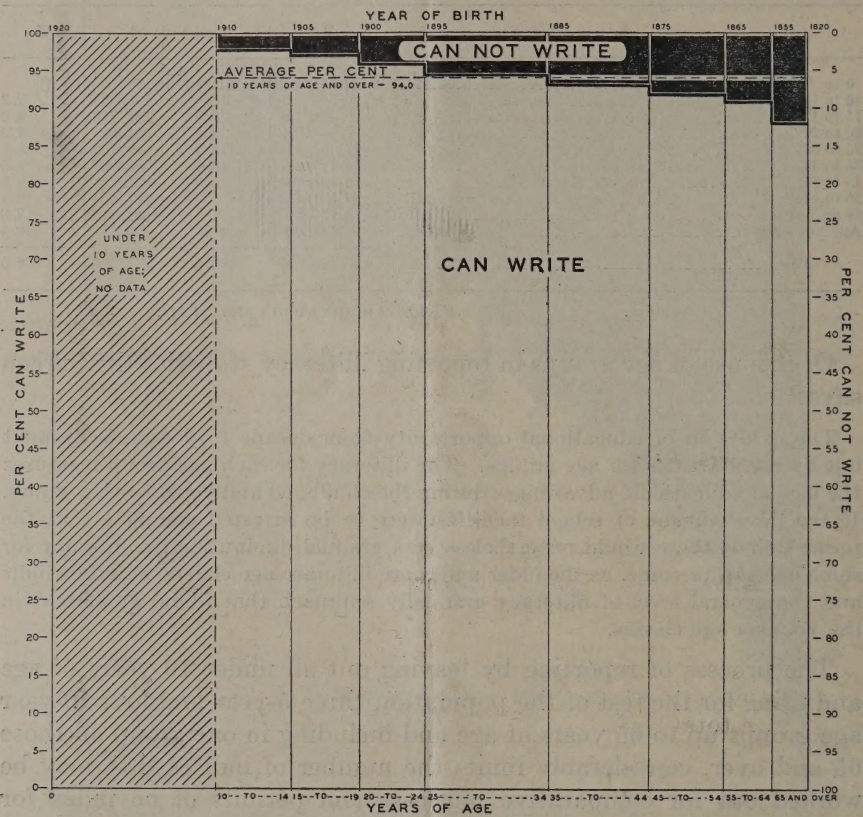

CHART II.—Distribution by age groups of literates (can write) and illiterates (can not write) in continental United States, census of 1920. Scale—0.07 square inch equals 500,000 population

II are considerably higher than those in the decennial censuses corresponding to the times when those age groups would ordinarily have been in school. The principal reason for this is that the school system was growing and the younger age groups regularly stood higher in literacy than did the total population. In addition the rapidly expanding primary and elementary school system forced considerable unorganized adult education even before the present widespread organized schemes for adult education began coming into effect. Note the following table in which the indices for the age groups given

in 1920 are compared with the indices for the total population as determined by censuses taken when those age groups were from 5 to 14 years old.

TABLE 3.—*Comparison of indices for age groups, 1920, with total population as determined by censuses when age groups were from 5 to 14 years old*

Age group used in the census of 1920	Date of census when that group was 5 to 14 years of age	Per cent of literacy in age group in census of 1920	Per cent of literacy in total population by decennial census
1	2	3	4
65 years and over	None	88.0	(1)
55 to 64	1870	90.9	80.0
45 to 54	1880	91.8	83.0
35 to 44	1890	93.0	86.7
25 to 34	1900	94.4	89.3
20 to 24	1910	95.8	92.3
15 to 19		97.0	
10 to 14	1920 (10–14)	97.7	94.0

[1] Not known.

British India.—In respect to definition the authorities of India were somewhat more exacting in the census of 1921 than those of the United States were in 1920. In India "only those were to be considered literate who could write a letter to a friend and read the answer to it." With respect to reporting the data collected the Indian figures are the more satisfactory in that they permit working out indices for the total population and for that 5 years of age and over as well as for the group 10 years of age and over. They are less satisfactory in the later age groupings, only three are used—10 to 14, 15 to 19, and 20 years and over. Moreover, in 1911 the definition of literacy was changed from that used in previous years so the 1921 data may be compared only with those of 1911. The lack of age grouping among those over 20 years is largely due to the great difficulty of getting the ages of the people of India. Table 4 shows the figures for 1920 for literacy in any language.

TABLE 4.—*Literacy in any language in British India, census of 1921*

Age group	Persons in group	Per cent of total population	Number of literates	Per cent of literacy
1	2	3	4	5
0 to 5	41,696,703	13.2	(1)	
5 to 10	44,707,095	14.1	938,849	2.1
10 to 15	36,741,852	11.6	2,683,951	7.4
15 to 20	26,144,890	8.3	2,825,735	10.9
20 and over	166,059,878	52.6	16,164,574	9.8
Not known	704,813	.2	10,542	
Total	316,055,231	100.0	22,623,651	7.2
5 and over	274,358,528		22,623,651	8.2
10 and over	229,651,433		21,684,802	9.5

[1] None.

Note that the number of persons under 10 years of age constitutes a high proportion (27.3 per cent) of the total population.

The data in Table 4 are shown graphically in Chart III, which is drawn on the same principle as Charts I and II but with a scale in which 0.023 square inch represents 500,000 population. The popula-

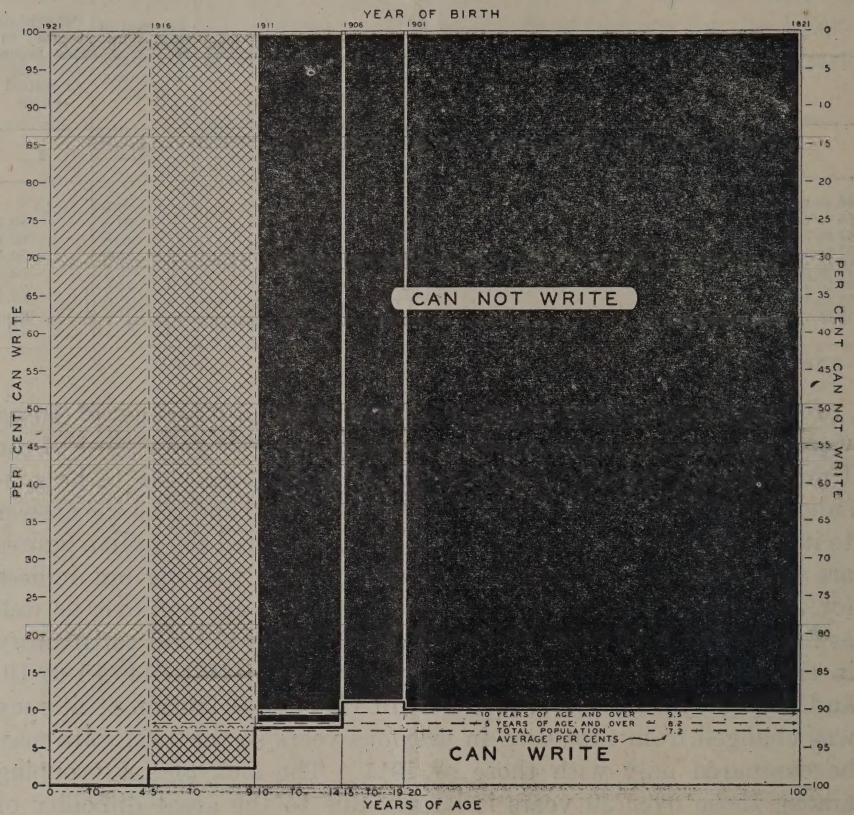

CHART III.—Distribution by age groups of literates (can write) and illiterates (can not write) in British India, census of 1921. Scale—0.023 square inch equals 500,000 population

tion of India is about three times that of continental United States and sixty times that of Bulgaria.

The three indices of literacy in Chart III are much closer together than they are in Chart I. In so large a population with a low literacy rate the exclusion of the age groups under 5, and under 10, makes less difference in the index of literacy.

Spain.—The Government of Spain reported statistics of literacy for 1920 under the criteria "Can read only," "Can write," and "Can not read," and arranged them by the groups: Under 5 years of age, 1 year each from 5 to 10, 2 years each from 10 to 20, 5 years each from 21 to 60, and 10 years each from 61 to 100. The data for these 23 different age groups are given in the following table:

TABLE 5.—*Percentages of population and degrees of instruction for different age groups in Spain, census of 1920* [1]

Age groups	Population of given age		Can read only		Can write		Can not read	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	2	3	4	5	6	7	8	9
Under 5 years of age	2,253,843	10.5	1,418	0.06	1,646	0.07	2,249,439	99.8
5 years	460,193	2.1	8,950	2.0	16,607	3.6	433,950	94.3
6 years	470,547	2.2	13,496	2.9	59,600	12.7	396,000	84.1
7 years	462,635	2.1	15,255	3.3	114,803	24.8	330,528	71.4
8 years	486,098	2.2	14,246	2.9	163,173	33.6	305,936	63.0
9 years	450,578	2.1	10,553	2.3	189,745	42.1	248,204	55.09
10 years	498,511	2.3	10,363	2.08	233,788	46.9	252,275	50.6
11 to 13 years	1,355,051	6.3	17,982	1.3	736,090	54.3	595,272	43.9
14 and 15 years	888,729	4.2	8,348	.94	523,519	58.9	352,763	39.7
16 and 17 years	841,256	3.9	6,630	.78	518,802	61.7	311,713	37.05
18 to 20 years	1,224,293	5.7	8,783	.72	760,628	62.2	447,876	36.5
21 to 25 years	1,761,043	8.2	11,403	.65	1,133,725	64.4	604,614	34.3
26 to 30 years	1,644,223	7.7	10,269	.62	993,742	60.4	631,314	38.4
31 to 35 years	1,349,209	6.3	8,878	.65	815,036	60.4	518,419	38.4
36 to 40 years	1,375,795	6.4	9,729	.7	771,581	56.0	587,495	42.7
41 to 45 years	1,139,004	5.3	8,144	.71	643,817	56.5	481,915	42.3
46 to 50 years	1,156,137	5.4	8,428	.72	604,441	52.2	538,043	46.6
51 to 55 years	865,657	4.5	6,331	.73	454,334	52.5	401,268	46.3
56 to 60 years	930,549	4.3	6,754	.72	429,412	46.2	490,159	52.6
61 to 70 years	1,164,324	5.4	8,489	.73	510,107	43.8	640,191	54.9
71 to 80 years	456,604	2.1	3,515	.77	172,249	37.7	277,975	60.9
81 to 90 years	79,483	.38	688	.87	25,714	32.3	52,384	65.9
91 to 100 years	6,808	.03	98	1.4	1,962	28.8	4,562	67.1
Over 100	279	.002	12	4.3	88	31.6	153	54.8
Age unknown	68,885	.33	998	1.5	29,510	42.8	17,967	26.1
Total	21,389,842	99.94	199,754	.9	9,904,824	46.3	1,170,415	52.2

[1] Computed from Annuario Estadistico de España, Año XI, 1924-25. The ages were not determined for 114,849 persons, representing 0.6 per cent of the population.

We are concerned here only with the figures under the headings "Population of given age" and "Can write." The data in those columns are presented graphically in Chart IV, drawn on a scale of 0.345 square inch equals 500,000 population. Charts I and IV when compared show that for the total populations and the groups 5 years of age and over, and 10 years of age and over, Spain and Bulgaria were on almost the same level in 1920. Using for prediction the trends of the curves of literacy in the two graphs, Bulgaria will lead Spain in literacy in 1930. Its curve shows a strong uptrend; that of Spain indicates a condition practically stationary. Spain started the century 1820 to 1920 on a higher literacy level than Bulgaria did. It has made comparatively slow progress in that respect in the hundred years. The Bulgarian school system takes hold of the children between the ages of 5 and 10 more rapidly than the Spanish system. The basic law of the present system of public instruction in continental Spain was passed September 9, 1857. Its effects seem to show in the rise of the curve of literacy from 1860 to 1900. Spain lost the last of its great colonial possessions, the Philippines, Cuba, Porto Rico, and Guam, shortly before 1900. The decrease in literacy in continental Spain in the years 1900 to 1910

corresponds to the period of readjustment after that loss and may be due to it, though there is no adequate evidence of such a causal relation.

Comparable data.—The sixth advantage in having literacy statistics by age groups and presenting them graphically in the forms shown in the four examples is the considerable one of being able to make sound statistical comparisons. Graphs I, II, III, and IV are properly

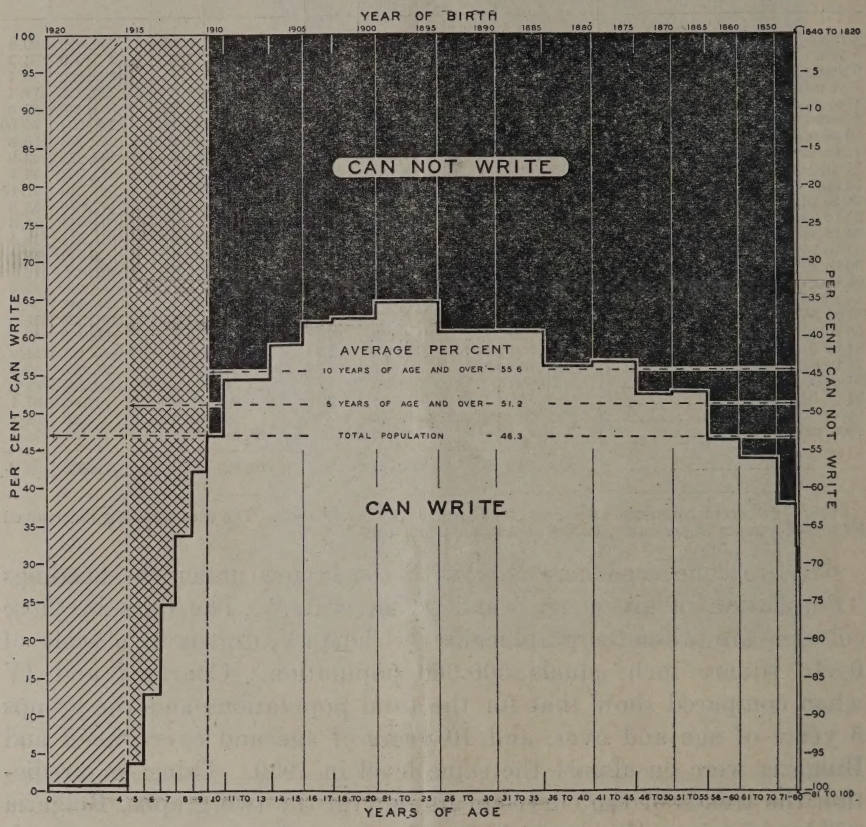

CHART IV.—Distribution by age groups of literates (can write) and illiterates (can not write) in Spain, census of 1920. Scale—0.345 square inch equals 500,000 population

comparable with respect to the per cent of persons 10 years of age and over that can write. They are drawn on different scales so the comparative numerical size of the populations are not easily grasped and the total effect of these countries on illiteracy in the world at large is in no way indicated. These factors may be brought out by tabulation and graph as they are in Table 6 and Chart V. The data are as follows:

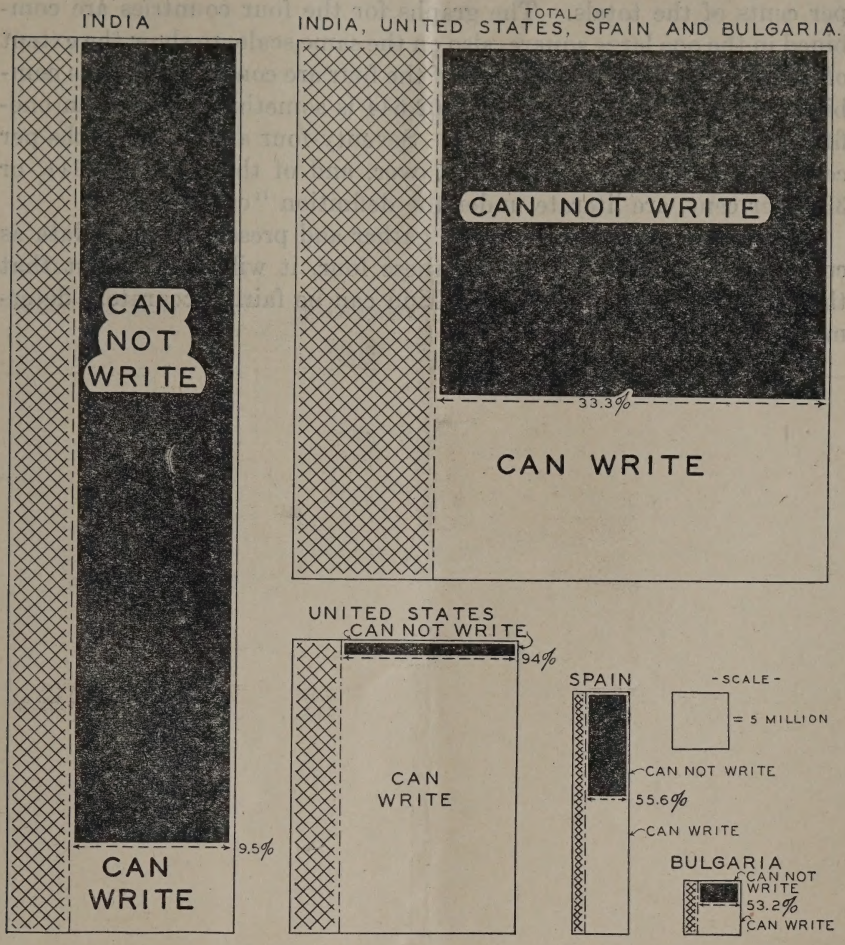

CHART V.—Comparable conditions of literacy (can write) and illiteracy (can not write) in India, United States, Spain, and Bulgaria

TABLE 6.—*Comparable statistics of literacy for India, the United States, Spain, and Bulgaria*

Name of country	Total population	Population 10 years of age and over	"Can write" 10 years of age and over	Per cent "Can write"
India	316,055,231	229,651,433	21,684,802	9.5
United States	105,710,620	82,739,315	77,807,410	94.0
Spain	21,389,842	16,805,948	9,359,250	55.6
Bulgaria	4,846,971	3,732,483	1,987,779	53.2
Total	448,002,644	332,929,179	110,839,241	33.3

These are arranged graphically in Chart V, in which the populations are drawn to the same scale, 0.08 square inch equals 5,000,000, so that their comparative sizes are evident. The groups under 10 years of age, shown in double cross hatch, are laid off as the correct

per cents of the totals. The graphs for the four countries are combined in the one large square, also on the same scale, to show the extent of literacy when the populations of the four are considered as one combined group. The total of 448,002,644 is something more than one-fifth the population of the world. Seventy-four and three-tenths per cent of it is 10 years of age and over, and of these 110,839,241, or 33.3 per cent, are literate under the definition "can write."

As other countries of the world gather and present literacy data as comparable as those offered by these four, it will come about that the extent of literacy for all mankind can be fairly accurately determined.

U. S. GOVERNMENT PRINTING OFFICE: 1930

For sale by the Superintendent of Documents, Washington, D. C. - - - - - Price 5 cents